Goddard Space Flight Center 2009 Sample Student Projects

Required Academic Level

Freshman/Sophomore
Undergraduate, Junior/Senior
Undergraduate, Graduate/Masters

Category

Space Science

Subcategory

Astrophysics

Project Title

Multi-wavelength Studies of Galaxies (Including X-ray Binaries)

Project Description

Our research group is currently studying galaxies in group and cluster environments, focusing on star formation properties and accreting binary star populations. The accreting binary population consists of neutron star/black hole binaries accreting matter from donor stars. These accreting sources produce X-ray emission. The exact project will be tailored to the current pressing needs of our research group and the interests/experience of the student, For instance, we are in need of help in reducing astronomical data from X-ray missions, from ground-based optical telescopes, and from space-based optical/IR/UV telescopes. We are also starting up new modeling efforts: we are adapting a complex piece of code that predicts the accreting binary population after a starburst event to work for longer-term evolution of X-ray emission from galaxies. Experience with computer programming (IDL, C, FORTRAN) and the Unix/Linux environment is highly desirable as the position will involve writing computer code.

Mentor's Expectation of Student

I am looking for motivated student interns who will work hard with our research group over the summer. The possibility exists for employment after the summer if the student does well. The student will need to produce short weekly written reports, report to the group during our weekly group meetings, be willing to work with a team and be self-motivated. A final oral presentation and written paper will be required as well. Note that our interns have gone on to graduate school and done very well based on recommendation letters from our group.

Discipline of Project and/or Background Needed to successfuly complete the project

Astrophysics

Skills

Linux/Unix, C, IDL